NISTTech

Fractionating Nanomaterials By A Liquid Multiphase Composition

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Abstract

A process for fractionating a nanoparticle composition, the process includes combining a first polymer, a second polymer, and a solvent to form a fluid and contacting the nanoparticle composition with the fluid. The nanoparticle composition includes a plurality of first nanoparticles, a plurality of second nanpparticles, and a dispersant disposed on an exterior surface of the first nanoparticles and the second nanoparticles. Fractionating the nanoparticle composition also includes forming a multiphase composition that includes a first phase and a second place by partitioning the first polymer and the second polymer such that a concentration of the first polymer is greater than ; a concentration of the second polymer in the first plase, and the concentration of the second polymer is greater than the first polymer in the second phase, wherein the solvent is present in the first phase and the second phase. Additionally, the process includes apportioning the first nanoparticles and the second nanoparticles among the first phase and the second phase to fractionate the nanoparticle composition, based on a relative affinity of the first nanoparticles and the second nanoparticles for the first polymer and the second polymer, wherein the first nanoparticles are present in the first phase and substantially absent in the second phase, and the second nanoparticles are present in the second phase and substantially absent in the first place.

Inventors

- Khripin, Constantine Y.

References

- 13-013Application

Status of Availability

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